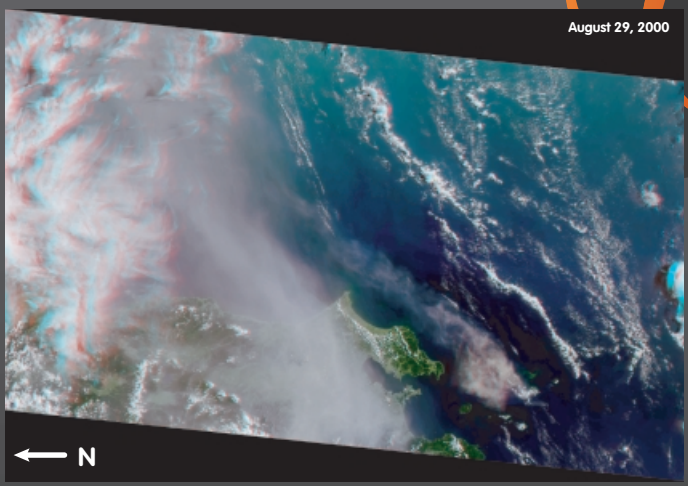
Mount Oyama Erupts!

In the summer of 2000, Mount Oyama's numerous ash and steam eruptions forced evacuation of Japan's Miyakejima Island.

NASA's Earth-observing instruments recorded the eruptions and their effects.



Red-blue glasses required to view 3-D effects.

Image courtesy of NASA/GSFC/JPL, MISR Science Team.

MISR anaglyph shows eruption plume and atmospheric ash.

TOMS identifies atmospheric sulfur dioxide concentration pushed southward by winds.

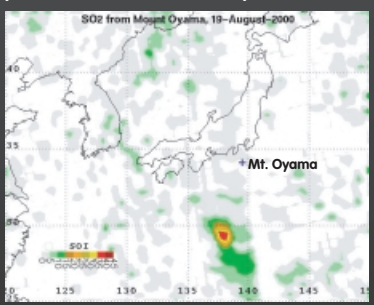


Image courtesy of TOMS Science Team.

CERES image displays hot ash clouds in white.

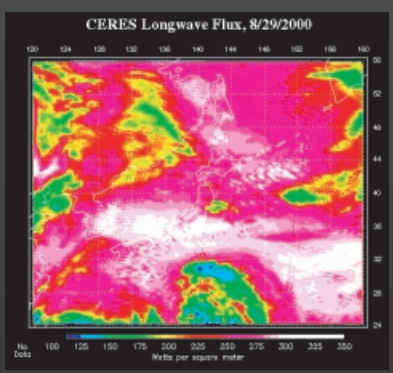
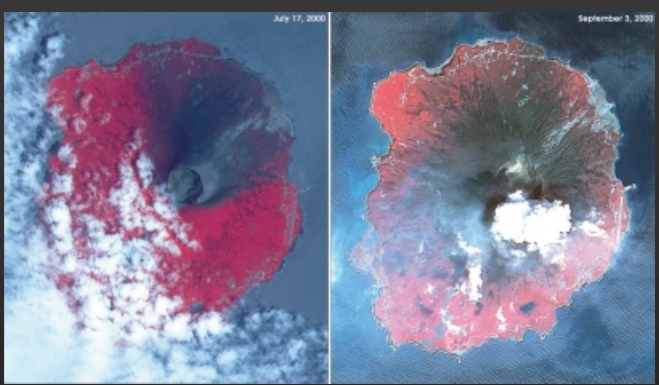


Image courtesy of CERES Science Team.

ASTER images show ash deposited from eruptions on July 7–8 and 14–15 (left), and a larger caldera and more extensive ash deposits from August 28–29 eruptions (right).



Images courtesy of NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan ASTER Team.

National Aeronautics and Space Administration

Mount Oyama Eruption and Effects Seen From Space

In the summer of 2000, the summit volcano Mount Oyama produced several ash and steam eruptions. Accompanied by numerous earthquakes, these volcanic eruptions forced the evacuation of the entire population of Miyakejima Island, one of the Izu Islands about 200 kilometers (125 miles) south of Tokyo, Japan.

The three-band composite and color-coded images show the local and regional effects of volcanic eruptions. Ash aerosols, atmospheric gases, and ash deposits are represented by the different colors seen in the images. Additional computer processing is able to enhance subtle color differences and produce images in perspective and stereo views. The composite and processed images allow geologists to study how volcanoes work, atmospheric scientists to study wind patterns, and risk assessors to monitor geologic hazards.

Scientific data products from NASA's Earth Observing System (EOS) satellites allow observation and analysis of environmental changes. The images featured on this poster represent a small sample of the many EOS Data and Information System (EOSDIS) products useful in studying volcanic eruptions.

Terra MISR – Multi-angle Imaging SpectroRadiometer

The true-color anaglyph (3-D red and blue lenses) image reveals the eruption plume of volcanic ash rising from Mount Oyama. (Note that north is to the left). The lack of structure in the ash aerosols from the previous day's eruptions inhibits the 3-D effect, but the broken clouds over Japan show strong 3-D effects.

Image courtesy of the NASA/GSFC/JPL, MISR Science Team
Data Granule ID: SC:MI1B2E.001:303664. Data acquired August 29, 2000
Data Set: MISR LEVEL 1B2 ELLIPSOID DATA V001

Terra CERES – Clouds and the Earth's Radiant Energy System

The longwave flux image subset by latitude and longitude from the full-Earth, 24-hour granule shows hot ash clouds (white) in contrast to cool ice clouds (green to blue). Changing winds blew the ash both east and west following the Mount Oyama eruptions of August 28 and 29.

Image courtesy of the CERES Science Team
Data Granule ID: CER_ES8_Terra-FM2_Edition1_019015.20000829. Data acquired August 29, 2000
Data Set: CER_ES8_Terra-FM2_Edition1

Earth Probe TOMS – Total Ozone Mapping Spectrometer

The sulfur dioxide index (SOI) on a background map displays the high concentration of sulfur dioxide that was expelled by Mount Oyama on August 18 and pushed southward by winds.

Image courtesy of the TOMS Science Team. Data acquired August 19, 2000
View and order data using the TOMS Aerosol Data Web page at http://toms.gsfc.nasa.gov/aerosols/aerosols.html

Terra ASTER – Advanced Spaceborne Thermal Emission and Reflection Radiometer

The ASTER false-color images show the ash deposits (black areas) in the northeastern part of the island of Miyakejima produced by the mid-July eruptions and the more extensive ash deposits (and larger caldera) produced by the late-August eruptions.

Image courtesy of the NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan ASTER Science Team
Data Granule ID: SC:AST_L1B.002:2002522192. Data acquired July 19, 2000
Data Set: ASTER LEVEL 1B DATA SET REGISTERED RADIANCE AT THE SENSOR V002
Data Granule ID: SC:AST_L1A.002:2003568216. Data acquired September 3, 2000
Data Set: ASTER LEVEL 1A DATA SET - RECONSTRUCTED, UNPROCESSED INSTRUMENT DATA V002

The images and information on this poster are also presented in the *EOSDIS Data Sampler #2, Mount Oyama Volcanic Eruptions 2000,* CD-ROM. This CD contains expanded information, data, and images for the Mount Oyama events; information about the missions and instruments that acquired the data; tools for using the data; and links to relevant Web sites. Online versions of the CD and poster are available from http://eos.nasa.gov/outreach/.

For information about the NASA EOS missions and instruments, see http://eos.nasa.gov/.
For information about the data centers that distribute EOSDIS data, see the DAAC Alliance Web site at http://nasadaacs.eos.nasa.gov/.